



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/351,147	07/12/99	CHESTER	10164-1

023455
EXXONMOBIL CHEMICAL COMPANY
P O BOX 2149
BAYTOWN TX 77522-2149

IM22/1010

EXAMINER
GRIFFIN, W

ART UNIT	PAPER NUMBER
1764	7

DATE MAILED: 10/10/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/351,147

Applicant(s)
Chester et al.

Examiner
Walter D. Griffin

Group Art Unit
1764



☒ Responsive to communication(s) filed on Sep 6, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-10 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-10 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 1764

DETAILED ACTION

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the citizenship of each inventor.

The citizenship of inventor Ke Liu is not identified. The identification of the inventor as a permanent resident of the USA does not identify the citizenship.

The examiner notes applicants' statement that a revised declaration will be provided. However, it has not yet been received.

Response to Amendment

The objection to the disclosure as detailed in paper no. 5 has been withdrawn in view of the amendment filed on September 6, 2000.

Art Unit: 1764

The rejections under 35 U.S.C. § 112, second paragraph, and under 35 U.S.C. § 102 and 103 as detailed in paper no. 5 are also withdrawn in view of the amendment.

Specification

The disclosure is objected to because of the following informalities: The amendment to line 1 of page 2 is incorrect because a comma and the words "a small" are missing after the word "method" in the amendment. These were present in the original first line of page 2 and appear to be essential to its meaning.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for

Art Unit: 1764

establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ladwig et al. (6,069,287) in view of Adewuyi et al. (5,997,728).

The Ladwig reference discloses a process for selectively producing light olefins (i.e., C_2-C_4) by contacting a naphtha hydrocarbon feed with a catalyst at conversion conditions. The naphtha has a boiling range from about 65°F to about 430°F. This range overlaps the range claimed and therefore, the naphtha of Ladwig must be a C_4+ naphtha as claimed. The catalyst may comprise a medium pore zeolite with a silica to alumina molar

Art Unit: 1764

ratio of less than 75 in amounts ranging from 10 to 50 wt% of the total catalyst composition. Such zeolites include ZSM-5 and ZSM-11. The catalyst also comprises an inorganic matrix that is preferably not catalytically active. The disclosure of a non-catalytically active matrix would disclose the limitation of an inert matrix. Process conditions include temperatures from about 500° to about 650°C, a hydrocarbon partial pressure from about 10 to 40 psia and a catalyst to naphtha weight ratio from about 3 to 12. It is also preferred that steam be concurrently introduced with the naphtha into the reactor. The steam may comprise up to about 50 wt% of the naphtha. It is preferred that the weight ratio of propylene to ethylene be greater than about 4. However, the examples disclose propylene to ethylene weight ratios ranging from 1.9 to 5.8%. The teaching that aromatics in the heavy naphtha product may be recycled suggests that aromatics are produced in the process since the aromatics are part of a product. (See col. 2, line 46 through col. 5, line 9 and the examples.)

The Ladwig reference does not disclose that the zeolite is treated with a phosphorus-containing compound to result in a catalyst with the claimed amount of phosphorus, does not disclose the claimed WHSV, does not disclose the claimed amount of alumina in the matrix, and does not disclose the product compositions.

Art Unit: 1764

The Adewuyi reference discloses that adding phosphorus to ZSM-5 stabilizes it and makes it more attrition resistant. It also retains its activity for a longer time. (See col. 3, lines 31-38.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ladwig by adding phosphorus to the zeolite as suggested by Adewuyi because the zeolite will have a longer useful life. It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the combined teachings of the references by utilizing phosphorus in the amounts claimed because one would utilize a known effective catalytic component in amounts that would result in the most effective process.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ladwig by utilizing the claimed WHSV because Ladwig discloses that changing process conditions affects the yield and purity of the products. Therefore, one having ordinary skill in the art would adjust the conditions including WHSV in order to obtain desired products.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the

Art Unit: 1764

process of Ladwig by utilizing alumina in the amounts claimed because the matrix may contain alumina and must also not be catalytically active. Therefore, with this direction, one having ordinary skill in the art would utilize alumina amounts that would result in a non-catalytic (i.e., substantially inert) matrix. These amounts would necessarily include the claimed amounts.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ladwig by producing products having the claimed compositions because Ladwig discloses that changing process conditions affects the yield and purity of the products. Therefore, one having ordinary skill in the art would adjust the conditions to obtain desired products in the desired amounts.

Response to Arguments

The argument that the Ladwig reference fails to disclose or suggest the claimed "substantially inert matrix material" is not persuasive because Ladwig discloses at column 4, lines 33-35, that, preferably, the matrix is not catalytically active. Applicants have shown no distinctness between the claim language

Art Unit: 1764

of "substantially inert" and the language "not catalytically active".

The argument that Ladwig's teaching of aromatics recycling does not necessarily imply that such aromatics are products of the process is not persuasive because the teaching is that aromatics are contained in a heavy naphtha recycle product. The use of the term "product" suggests that this heavy naphtha is produced in the process.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing

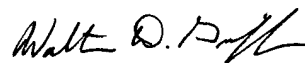
Art Unit: 1764

date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter Griffin whose telephone number is (703) 305-3774. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Marian Knode can be reached at (703) 308-4311. The fax phone number for this Group is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.



WALTER D. GRIFFIN
PRIMARY EXAMINER
ART UNIT 1764

WG

October 4, 2000